

AMENDMENTS TO THE DRAWINGS:

The attached drawing(s) include changes to FIGS. 1-10. The sheets containing FIGS 1-10 replace the original sheets including FIGS 1-10. The figures have been redrafted by a patent draftsman to comply with 37 CFR 1.121(d).

In the Office Action at items 1-4, the Examiner objected to the drawings. In order to overcome these objections, replacement figures are submitted herewith. FIGS 1-10 are objected to "because the lines and lettering in the figures are not 'clean' and 'uniformly thick and well-defined.'" In addition, the Office Action alleged that "[a]ll drawings appear to be poor copies of the originals in the PCT application." Approval of these changes to the Drawings is respectfully requested.

REMARKS

The Office Action is defective for failing to correctly reference Burr. In the Office Action on page 3, Burr is referenced as "US 7,109,961," but the Office Action references specific paragraph numbers which are not found in an issued patent. The Examiner was telephoned and seemed to recognize this clear error. The Examiner indicated that a corrected Office Action would follow. However, the Applicant has not received a corrected Office Action. Therefore, the Applicant respectfully submits that the next Office Action should be corrected and **NON-FINAL**.

Favorable reconsideration of this application, in light of the following discussion and in view of the present amendment, is respectfully requested. In accordance with the foregoing, the drawings have been amended. Claim 36 has been added. Antecedent basis for claim 36 can be found at paragraph [0021] of the Application, for example. Claims 16-36 remain pending for reconsideration, which is respectfully requested.

No new matter has been added. The Examiner's rejections are respectfully traversed.

I. Objection to the Drawings

The drawings are objected to because "the lines and lettering in the figures are not 'clean' and 'uniformly thick and well-defined' and appear to be poor copies of the originals in the PCT application." As required by 37 C.F.R. 1.84(l):

All drawings must be made by a process which will give them satisfactory reproduction characteristics. Every line, number, and letter must be durable, clean, black (except for color drawings), sufficiently dense and dark, and uniformly thick and well-defined. The weight of all lines and letters must be heavy enough to permit adequate reproduction. This requirement applies to all lines however fine, to shading, and to lines representing cut surfaces in sectional views. Lines and strokes of different thicknesses may be used in the same drawing where different thicknesses have a different meaning.

In accordance with the foregoing, the Applicants have employed the services of a patent draftsman to redraft the drawings and hereby submit replacement drawings. Accordingly, withdrawal of the objection to the drawings is respectfully requested.

II. Rejection under 35 U.S.C. §103

Claims 16, 18, 19, 22, 23, 26, 27, 28, 33-35 are rejected under 35 U.S.C. §103(a) as being unpatentable over Burr (US 7,109,961) in view of Fredricksson (US 2004/0023678). This rejection is respectfully traversed.

The Office Action, at page 3, refers to paragraphs [0013], [0031], [0033], [0034] and [0035] of Burr which is cited as US 7,109,961. Through Applicant's effort, Burr Patent Application Publication (2003/0078062) was obtained. Therefore, because it cannot clearly be ascertained what the rejection is based upon, this rejection is respectfully traversed. The discussion below assumes that the paragraph numbers in the Office Action relate to US 2003/0078062.

In a non-limiting example, the present application teaches a method for synchronization of mobile stations in a radio communication system in claim 16, a mobile station for use in a radio communication system in claim 33, and a radio communication system in claim 35. According to claim 16, a plurality of mobile stations situated within radio range of one another transmit synchronization sequences between one another thereby allowing each station to synchronize itself in relation to other mobile stations, and allowing payload data to be exchanged between synchronized mobile stations. Referring to claim 36, it is especially notable that the present application teaches a method that does not rely upon a GPS centralized external synchronization source to provide synchronization sequences. GPS is not always accessible, for example, in buildings. Rather, synchronization between the mobile stations is performed by at least some of the mobile stations. In addition, in accordance with the method of claim 16, payload data is transmitted by at least one mobile station with a range that is less than a range for synchronization sequences transmitted by the mobile station. One potential purpose of this is to allow multiple separate clusters to co-exist without desynchronization. Other different goals are also possible.

Furthermore, Applicants respectfully submit that claim 16 patentably distinguishes over the cited art and a *prima facie* case of obviousness can not be based upon Burr and Fredricksson because Burr and Fredricksson and any combination thereof fail to disclose, either expressly or inherently, the method for synchronization of mobile stations disclosed in claim 16, including:

transmitting synchronization sequences from at least some of the mobile stations;

using the synchronization sequences from other mobile stations so that each mobile station can synchronize itself;
and

for at least one of the mobile stations, **transmitting payload data with a range that is less than a range for synchronization sequences transmitted by the mobile station.**

Although incorrectly referenced, the Office Action alleges that paras. [0013], [0031], and [0033] of Burr teach “transmitting synchronization sequences from at least some of the mobile stations.” Para. [0013] of the Burr Patent Application Publication refers to its Fig. 2 which illustrates a **mobile device** operable within the mobile ad-hoc network. However, claim 16 of this Application is directed toward a **method** for decentralized synchronization of mobile stations in a self-organizing radio communication system.

The Office Action further alleges that Fig. 1, and paras. [0034] and [0035] of Burr teach “using the synchronization sequences from other mobile stations so that each mobile station can synchronize itself.” However, there is not a Fig. 1 found in the Patent Application Publication nor the issued Patent, but rather figs. 1A and 1B which are referred to as “prior art.” Because the “prior art” of Burr is different, it teaches away from that which is taught in paras. [0005]-[0010] and Fig. 2 of the Burr Patent Application Publication 2003/0078062.

The Office Action next admits that Burr lacks a teaching of “at least one of the mobile stations transmitting payload data with a range that is less than a range for synchronization sequences transmitted by the mobile station.”

The Office Action alleges that Fredriksson in Figs. 1, 2 and paras. [0035], [0036] teaches an arrangement wherein the range of synchronization and payload packets are adjustable and can be adjusted such that the payload data is less than the synch data. The Office Action alleges that:

Fredricksson teaches that adjusting the synch range greater than the data range allows mobiles to complete synchronization before entering the data area. Therefore it would have been obvious to one of ordinary skill in the art to modify Burr to transmit synch data with a greater range than payload data in order to allow mobile to complete synchronization before entering data transmission range as taught by Fredriksson.

First, the Office action’s assertion of allowing mobile units to complete synchronization before entering the data transmission range is unnecessary to the present Application, rather the greater range of transmission of synchronization sequences than the range of transmission of payload data may create a “guard zone” as disclosed in Figs. 7-9 and paras. [0078]-[0117]. See claim 36. Furthermore, Burr’s synchronization range is extended due to use of GPS, which is NOT synchronization signals transmitted by the mobile, as claimed.

Apparently, the Examiner understood the present Application’s transmission range of synchronization information to be slightly analogous to Fredriksson’s reference time area, 8, and understanding the present Application’s transmission range of payload information to be slightly

analogous to Fredriksson's network area, 2; para. [0036] of Fredriksson which references fig. 2 of Fredriksson teaches away from the Application because the network area is larger than the reference time area.

Para. [0035] with reference to fig. 1 apparently describes a different embodiment in which the network area range is less than the reference time area range. However, even with this embodiment, para. [0035] fails to disclose, either expressly or inherently:

using the synchronization sequences from other mobile stations so that each mobile station can synchronize itself

because while Fredriksson's reference time area range is smaller than the network area, it makes use of an external synchronization device as the time generation system, such as GPS. Fredriksson discloses the use of GPS in both para. [0010] and in Fig. 1. It would be expected that the range for GPS is very large. However, the present invention relates to synchronization between the mobile stations. Para. [0008] of Fredriksson states:

The principle characteristics of the arrangement according to the invention include [i.e.] that the arrangement comprises a network area, in which the units exercise their communication in a network, and that the respective unit is adapted to identify and receive information related to a radio protocol including [rules] for time slots and selection of frequencies in the time slot system and information of a used type of a time reference system, **for example GPS**, valid for the arrangement.

In other words, Fredriksson references an external time reference system such as GPS to synchronize units as opposed to the method of claim 16 which synchronizes **between the mobile units**. The claims do not require an external time source such as GPS. See especially claim 36.

In addition, Fredriksson fails to disclose, either expressly or inherently:

for at least one of the mobile stations, transmitting payload data with a range that is less than a range for synchronization sequences transmitted by the mobile station.

Fredriksson's reference time area is transmitted by external sources such as GPS, while the range for the claimed synchronization sequences is at least partially controlled by mobile stations in this Application. Furthermore, the range for synchronization sequences is intentionally greater than the range of transmitted payload data, possibly resulting in a "guard zone" as disclosed in the Specification in Figs. 7-9 and paras. [0078]-[0117]. See claim 36. **No "guard zone" exists in Fredriksson.** The range of transmitted synchronization sequences and range of transmitted payload data and the corresponding their transmission source, some mobile

units, are not merely design choices. Without a “guard zone,” devices are susceptible to synchronization interference from separate neighboring clusters of mobile stations. Lacking the “guard zone,” para. [0033] of Fredriksson stresses that “[a]s the local networks are small geographically and **well-separated from each other**, all can work in a synchronized way.” This problem is illustrated in Fig. 6 and disclosed in the present Specification at para. [0074]. Separate clusters of mobile units in the present Application merely require to be spaced such that the “guard zone,” or difference between the range of synchronization sequences and the range of transmission of payload data overlap one another as shown in Figs. 7-9. Therefore, Fredriksson does not expressly or inherently disclose:

using the synchronization sequences from other mobile stations so that each mobile station can synchronize itself;
and

for at least one of the mobile stations, transmitting payload data with a range that is less than a range for synchronization sequences transmitted by the mobile station.

Accordingly, Applicants respectfully submit that claim 16 patentably distinguishes over the cited art and a *prima facie* case of obviousness can not be based upon Burr and Fredriksson, because Burr and Fredriksson and any combination thereof fail to disclose, either expressly or inherently, the method for synchronization of mobile stations disclosed in claim 16, including:

transmitting synchronization sequences from at least some of the mobile stations;

using the synchronization sequences from other mobile stations so that each mobile station can synchronize itself;
and

for at least one of the mobile stations, transmitting payload data with a range that is less than a range for synchronization sequences transmitted by the mobile station.

Claims 18, 19, 22, 23, 26, 27, and 28 recite similar features and are dependent upon independent claim 16. Therefore, Applicants respectfully submit that a *prima facie* case of obviousness can not be based upon Burr and Fredriksson or any combination thereof.

Claim 33 was rejected in the same manner as claim 16. Applicants respectfully submit that claim 33 patentably distinguishes over the cited art and a *prima facie* case of obviousness can not be based upon Burr and Fredriksson because Burr and Fredriksson and any combination thereof fail to disclose, either expressly or inherently, a mobile station for a radio communication system which is at least partly self-organizing, including

a transmitter to:

send synchronization sequences with reference to which other
mobile stations can synchronize themselves, and
**send payload data with a range that is less than a range for
the synchronization sequences sent by the mobile station.**

Claim 34 recites similar features and is dependent upon independent claim 33. Therefore, Applicants respectfully submit that a *prima facie* case of obviousness can not be based upon Burr and Fredriksson or any combination thereof.

Claim 35 was rejected in same manner as claim 16 and 33. Applicants respectfully submit that claim 35 patentably distinguishes over the cited art and a *prima facie* case of obviousness can not be based upon Burr and Fredriksson because Burr and Fredriksson and any combination thereof fail to disclose, either expressly or inherently, a radio communication system that is at least partly self-organizing, including

a plurality of mobile stations each having a transmitter to:
send synchronization sequences **with reference to which other
mobile stations can synchronize themselves**, and
**send payload data with a range that is less than a range for
the synchronization sequences sent by the mobile station.**

Claims 17, 20, 21, 24, 25, 29, and 30-32 are rejected under 35 U.S.C. §103(a) as being unpatentable over Burr in view of Fredriksson and further in view of Larsen (US 6,785,510). This rejection is respectfully traversed. Claim 17 comprises a method for synchronization of mobile stations, wherein:

the synchronization sequences are part of a data packet which
carries information.

Claims 17, 20, 21, 24, 25, 29, and 30-32 recite similar features and are dependent upon independent claim 17. Therefore, Applicants respectfully submit that a *prima facie* case of obviousness can not be based upon Burr, Fredriksson, and Larsen or any combination thereof.

In addition, the rejection is further traversed. The Office Action, at page 7, alleges that Larsen, at col. 3, line 15 through col. 4 line 15 “teaches a synch packet that contains data regarding quality in order that decisions about connection can be made before connection and synchronization” and that “[i]t would have been obvious to one of ordinary skill in the art to modify Burr in view of Fredriksson to include quality data in order to allow decisions about connection to be made before synchronization as taught by Larsen.” However, as opposed to col. 3, line 15 of Larsen, which discloses initiation of a call from a mobile station to a **base station** in a cellular wireless communication system. Elsewhere in the Office Action the Examiner recognizes the significant differences between cellular and ad hoc networks. As

disclosed from line 1 to line 11 of col. 3 of Larsen, Larsen teaches a hybrid between a conventional cellular system and a full ODMA (opportunity division multiple access) that uses base stations to broadcast time synchronization information on the calling channel or a dedicated broadcast channel which is monitored by all the remotes in the network or in the region of the particular base station, as disclosed in col. 9, lines 57 – col. 10 line 10 and col. 10 line 29 - 40.

Accordingly, Applicants respectfully submit that a *prima facie* case of obviousness can not be based upon Burr, Fredriksson, and Larsen because Burr, Fredriksson, and Larsen and any combination thereof fail to disclose, either expressly or inherently, claim 17, the method for synchronization of mobile stations disclosed in claim 16:

wherein the synchronization sequences are part of a data packet which carries information.

III. New Claim

New Claim 36 is related to a method for synchronization of mobile stations in a radio communication system, including:

transmitting synchronization sequences from at least some of the mobile stations;

using the synchronization sequences from other mobile stations, such that each mobile station can synchronize itself; and

for at least one of the mobile stations, transmitting payload data with a range that is less than a range for synchronization sequences transmitted by the mobile station, thereby defining a guard zone as the region in between the range of the payload data and the range of the synchronization sequences, wherein synchronization is performed without GPS.

Accordingly, Applicants respectfully submit claim 36 patentably distinguishes over the cited art.

IV. Conclusion

In accordance with the foregoing, the drawings and claims have been amended. Claims 16-36 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

III. New Claim

New Claim 36 is related to a method for synchronization of mobile stations in a radio communication system, including:

transmitting synchronization sequences from at least some of the mobile stations; using the synchronization sequences only from other mobile stations such that each mobile station can synchronize itself; and

for at least one of the mobile stations, transmitting payload data with a range that is less than a range for synchronization sequences transmitted by the mobile station, thereby defining a guard zone as the region between the range of the payload data and the range of the synchronization sequences.

Accordingly, Applicants respectfully submit claim 36 patentably distinguishes over the cited art.

IV. Conclusion

In accordance with the foregoing, the drawings and claims have been amended. Claims 16-36 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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